



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

Mr. Les Sinclair  
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OFFICE OF  
RESEARCH AND DEVELOPMENT

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Dear Mr. Sinclair:

Thank you for your response, dated September 6, 2012, to the Environmental Protection Agency's (EPA's) August 20, 2012, letter. EPA appreciates your continued efforts to provide information for EPA's study on the potential impacts of hydraulic fracturing on drinking water resources. The August letter provided an update on that study and an overview of EPA's proposed use of information on wells provided by ConocoPhillips and eight other oil and gas well operators, and included a series of draft figures depicting EPA's early efforts to analyze and portray the well operator information. These draft figures were based on hypothetical data and did not reflect the information provided by the well operators. Our August letter provided an opportunity for you to provide input on these figures, particularly with regard to whether you agreed with EPA that these portrayals of aggregated data do not release your confidential business information (CBI).

We also appreciate your time on November 1 and 2 to further clarify concerns voiced to EPA in your September letter. I understand that although you agreed that in most cases the aggregated data do not reveal CBI, you are concerned that figures such as scatter plots may reveal CBI. Scatter plots contain point value information on a well by well basis, and closer examination would be needed to make a CBI determination regardless of whether or not the identification of the well is provided.

In the circumstance where EPA continues to believe the best way to portray information is through the use of a scatter plot, we will provide you the opportunity to review the figure under consideration. Most likely, we will directly provide you with a draft figure or will identify the information that will be graphed, and thereby enable you to review the resulting figure with your own data.

In your letter and our follow-up conversations, you expressed a variety of other concerns about certain draft figures. Provided below are your paraphrased concerns and our response to these concerns.

**Comment 1:** This comment concerned scatter plots, particularly draft figures I, J, K, L, T, U, V, W and EE. Without an understanding of well construction practices and regulatory requirements, the draft figures cannot be correctly understood. The data could be negatively interpreted, and

because ConocoPhillips' name is associated with the study, it could reflect negatively on ConocoPhillips. You particularly point out draft figure T relating to hydraulic fracturing depth relative to drinking water resources and draft figure EE relating to casing pressure tests and hydraulic fracturing treatment pressure as being problematic.

**Response:** When Congress asked EPA for an analysis of hydraulic fracturing impacts to drinking water resources, EPA recognized that it should examine whether the well construction and operation practices associated with hydraulic fracturing impact water resources rather than evaluate the impact of legal requirements for well construction and operation. To the extent that there may be information revealed in our research that finds there are driving factors found that pose a potential risk to drinking water, EPA will report it.

We acknowledge your concern regarding having the ConocoPhillips' name associated with data that is described by EPA as a potential risk to drinking water, and invite further discussion concerning ways to address your concern while meeting the requirements of our study.

**Comment 2:** The portrayed data may not reflect a review of full well histories and EPA may thus make conclusions based on incomplete information. In your September letter, you made particular reference to EPA's draft figures O, P, Q, R, U, Y and Z, which EPA has proposed that would convey aggregated information regarding well cement as it relates to protection of drinking water resources, and to fracture growth during hydraulic fracturing relative to possible conduits such as offset faults.

**Response:** If there is data from ConocoPhillips' wells that you believe we should evaluate, we welcome it. We would like the research to be based on the complete set of relevant information that is necessary to conduct reviews of well files. While your comment did not explicitly identify which data may be absent from our possession, we are open to obtaining it and you may wish to schedule a call with us to describe relevant data you may have and to send us the data promptly so that we may consider it in our analysis, which is already underway.

**Comment 3:** The data as portrayed in some of the draft figures derives from a broad range of geographic locations, depths and regulatory jurisdictions and the aggregated results may have lost obvious value. In your comment, you particularly pointed out draft figures H, R, X, AA and BB.

**Response:** We respectfully disagree that the portrayals of data in the draft figures are overly broad. We wish to convey data in two categories: first, those that purely convey information that has no negative or positive connotation but may be useful for describing the range of occurrence of key variables associated with well construction, operation, location, etc., and second, those that show a driving factor identified that could pose risk of harm to drinking water. These particular draft figures have the potential to shed light in both of these categories. For example, draft figure R could potentially show that zonal isolation is not always effective at precluding cross flow and draft figure X could potentially show that different lithologies show a pattern relating to the amount of injected fluid during hydraulic fracturing.

**Comment 4:** Some of the draft figures introduce terms or portrayals that are either unclear or not normally used in the oil and gas extraction industry. In particular you point out draft figures H, Q and R.

**Response:** These draft figures were designed to convey information that could be useful to show well cementing information as it relates to wells' ability to provide full zonal isolation. The degree of zonal isolation is a key consideration when it comes to understanding whether wells may provide pathways for liquid or gas migration between different zones. We believe these may be helpful aids in discussing the various ways in which wells can pose potential risks to drinking water resources. Accompanying text in the final report will provide descriptions to accompany these terms.

**Comment 5:** Draft figures I, J, and L are designed to show the relative amount of flowback resulting from injected volume during hydraulic fracturing, yet the distinction between the end of flowback and the beginning of "produced water production" is not a uniformly defined boundary among well operators, and thus derivative values based on a volume of flowback are subject to these potential differences among operators.

**Response:** EPA recognizes that different operators use different definitions for produced water and flowback water. However, from the perspective of the evaluation of the potential impacts of hydraulic fracturing on drinking water resources, it is not clear that a crisp distinction between these terms is necessary. EPA would appreciate any helpful ideas you may have to assist EPA to uniformly identify the distinction between flowing back spent hydraulic fracturing fluids vs. initiating production of connate waters, which may still contain constituents of hydraulic fracturing fluids or materials mobilized as the result of the hydraulic fracturing process.

In closing, we appreciate this dialogue with you. Although you have expressed the above concerns about these draft figures, we believe we can nonetheless provide a report that will evenly portray our findings in a manner that allows for an informed national discussion about these matters.

I look forward to your response. If you have any questions, please contact Susan Sharkey (202-564-8789 or [sharkey.susan@epa.gov](mailto:sharkey.susan@epa.gov)).

Sincerely,



Jeanne Briskin

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